

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS**

1. – 14. (Cancelled)

15. (Currently Amended) A method for disseminating topology and link state information in a multi-hop network, the method comprising:

maintaining, at a source node in the multi-hop network, a path tree rooted at the source node;

originating, at the source node, an update message containing topology or link state information, wherein said originating includes deciding what information to include in the update message, said information comprising one or more of: at least one non-delete update for a link in the path tree that has changed or is new or at least one delete update for a link that is not in the path tree but is in a reported set of links; and

sending the update message, by the source node, to one or more children of the source node that are indicated by the path tree rooted at the source node.

16. (Previously Presented) The method of claim 15, wherein the update message relates to one or more links in the network.

17. (Previously Presented) The method of claim 15, wherein the update message includes data indicating whether the update message should be forwarded by the one or more children of the source node.

18. (Previously Presented) The method of claim 15, wherein the path tree is a minimum hop path tree.

19. (Previously Presented) The method of claim 15, wherein the maintaining comprises:

receiving, by the source node, link state information for one or more nodes in the path tree.

20. (Previously Presented) The method of claim 15, wherein the source node is connected to the one or more children of the source node by one or more wireless communication links.

21. (Previously Presented) The method of claim 15, wherein the sending comprises broadcasting the update message to the one or more children of the source node, if a number of the one or more children of the source node exceeds a predefined threshold.

22. (Previously Presented) The method of claim 21, wherein the predefined threshold is one.

23. (Currently Amended) The method of claim 15, wherein the sending comprises transmitting the update message to the one or more children of the source node by a unicast mode, if a number of the one or more children of the source node is less than or equal to a predefined threshold.

24. (Previously Presented) The method of claim 23, wherein the predefined threshold is one.

25. (Currently Amended) A method for disseminating topology and link state information in a multi-hop network including a plurality of nodes, the method comprising:

receiving, at a first node in the multi-hop network, an update message containing topology or link state information, the update message being received from a parent of the first node that is indicated by a path tree rooted at a source from which the update message originated, wherein the source decides what information to include in the

update message, said information comprising one or more of: at least one non-delete update for a link in the path tree that has changed or is new or at least one delete update for a link that is not in the path tree but is in a reported set of links;

updating, at the first node, a table of network topology stored at the first node in accordance with the update message; and

forwarding the update message, by the first node, to one or more children of the first node that are indicated by the path tree rooted at the source.

26. (Previously Presented) The method of claim 25, wherein the update message relates to one or more links in the network.

27. (Previously Presented) The method of claim 25, wherein the update message includes data indicating whether the update message should be forwarded by the first node.

28. (Previously Presented) The method of claim 25, wherein the path tree is a minimum hop path tree.

29. (Previously Presented) The method of claim 25, wherein the first node is connected to the parent of the first node by a wireless communication link.

30. (Previously Presented) The method of claim 25, further comprising:

sending, by the first node, a new parent message to a second node in the network, wherein the new parent message indicates that the second node has been selected as a parent for the first node.

31. (Previously Presented) The method of claim 30, further comprising:

receiving, by the first node, a new update message from the second node.

32. (Previously Presented) The method of claim 31, wherein the new update message includes a serial number, the serial number being greater than a serial number provided by the first node to second node in the new parent message.

33. (Previously Presented) The method of claim 25, wherein the forwarding comprises broadcasting the update message to the one or more children of the first node, if a number of the one or more children of the first node exceeds a predefined threshold.

34. (Previously Presented) The method of claim 25, wherein the forwarding comprises transmitting the update message to the one or more children of the first node by a unicast mode, if a number of the one or more children of the first node is less than a predefined threshold.